SECTION 5 AGRICULTURE

5.1. Current Programs and Capacity

Agricultural BMP Cost-Share Program

The Virginia Agricultural Cost-Share Program (VACS) provides financial incentives statewide to agricultural landowners and operators for the implementation of DCR approved BMPs. BMPs are implemented on crop and pasture lands, and address animal feeding operations. All implemented BMPs improve water quality. DCR has administered this program since 1985 when it was initiated with a single practice –filter strips on crop fields. Today, program guidance and detailed standards and specifications for all BMPs are contained within the VACS BMP Manual. The manual is updated annually to address changes in program guidance and the revision, removal or addition of specific BMPs. The state's 47 soil and water conservation districts (SWCDs) deliver this program across the state within the jurisdictions they serve (see § 10.1-546.1., Code of Virginia).

In 1997 the Virginia Water Quality Improvement Fund (see § 10.1-2128. Code of Virginia) was established to "…provide Water Quality Improvement Grants to local governments, soil and water conservation districts, state agencies, institutions of higher education and individuals for point and nonpoint source pollution prevention, reduction and control programs…" and other appropriate efforts. In 2008 a "Subfund" was established as the Virginia Natural Resources Commitment Fund (see § 10.1-2128.1 Code of Virginia), "… solely for the Virginia Agricultural Best Management Practices Cost-Share Program administered by the Department of Conservation and Recreation." Since 2006, funds deposited in the Water Quality Improvement Fund and the Subfund for implementation of agricultural BMPs has exceeded $80 million. An action by the 2010 General Assembly established a dedicated revenue stream that will place monies in the Subfund. The funds arise from an increase (from $10 to $20 per transaction) in the recordation fee for land transactions. The projected annual revenue is $9.1 million.

In 2005 DCR began to place greater emphasis on certain BMPs that were designated as "priority practices". These priority practices now represent five suites of BMPs that address:

- Nutrient Management,
- Vegetative Buffers (grass and forest),
- Conservation Tillage,
- Cover Crops, and
- Livestock Stream Exclusion.

DCR directs districts to spend no less than 80 percent of their VACS funding on these practices. The 20 percent balance may be spent on other practices (not within the five suites of priority practices) such as animal waste storage structures. The program provides a mix of flat-rate financial incentives and for practices that are cost-shared with the participant, usually at a maximum rate of 75 percent of implementation costs. Participants must have a conservation plan

to receive approval of cost-share funds and a nutrient management plan is required for many of the practices.

SWCDs employ technical staff that perform "on the farm assistance" with approved BMPs. The Commonwealth supports the cost of employing a workforce exceeding 70 full time technical staff among the 47 SWCDs. Monies supporting the staff are partially provided through a provision in the Virginia Natural Resources Commitment Fund, and also from annual appropriations of state monies by the General Assembly. Staff employed by districts collect and enter data for all approved BMPs in a newly updated computerized data entry program (Virginia Agricultural BMP Tracking Program). The database provides practice details that include reductions in nonpoint source pollutants, the BMP location, funds expended and other significant data. Stored data exist for over 20 years of BMP implementation. The current levels of district staff are expected to be sufficient for VACS delivery for the current state biennium (FY11-12), given the funds available for implementation of agricultural BMPs.

Agricultural BMP Tax Credit Program

This incentive program provides for a 25 percent state income tax credit up to $17,500 annually to encourage farmers to install eligible BMPs. To qualify, the BMP must be listed in and comply with the specifications contained in the *Virginia Agricultural Cost Share (VACS) BMP Manual*. All practices must be approved by the local soil and water conservation district. For all BMPs that are approved to receive the state income tax credit, documentation is provided to the agricultural producer and retained by the district, specifying the financial limits of the credit.

Code Reference:
§58.1-339.2 and §58.1-439.4 Code of Virginia

Agricultural Stewardship Act

This regulatory program allows for enforcement of a number of agricultural BMPs. The Commissioner of Agriculture and Consumer Services will respond to any complaint alleging water pollution from an agricultural activity on an un-permitted farming operation (operations not covered under a current Virginia Pollution Abatement (VPA) or Virginia Pollutant Discharge Elimination System (VPDES) Permit). If the agricultural activity is causing or will cause water pollution, the ASA gives the owner or operator an opportunity to correct the problem. The owner or operator will be asked to develop a plan containing the best management practices necessary to prevent the water pollution. Once the plan is developed, the local Soil and Water Conservation District (SWCD) has the opportunity to review it and make recommendations to the Commissioner. If the Commissioner approves the plan, he will then ask the owner or operator to implement the plan within a specified period of time. If the owner or operator fails to implement stewardship measures after a plan is approved, enforcement action under the ASA will be taken against the owner or operator. Enforcement actions include the issuance of a corrective order and civil penalties if the measures in the corrective order are not completed.

Even in cases where the ASA investigation does not produce sufficient evidence to support the conclusion that the agricultural activity in question is causing a water quality problem, the investigator will offer suggestions on how the owner or operator might improve his management practices to prevent future complaints. In most cases, technical assistance is provided to the

operator regarding resource management on their operation, even if outside the scope of the investigation.

Inspections typically occur throughout several phases of implementation of the plan. Following plan implementation, subsequent site visits continue to occur in order to ensure compliance; their frequency depends upon the nature of the complaint, as many cases will require less frequent inspections.

The ASA program receives complaints from citizens, state agencies, local governments, and conservation organizations. Typical water quality issues may include manure management issues and erosion and sedimentation issues on all types of animal agriculture operations (dairy operations, beef cattle farms, horse operations, swine farms, etc.) that do not meet the thresholds which require a VPA or VPDES permit. Also addressed are water quality complaints concerning non-animal operations such as crop farms.

By analyzing the trends of the water quality issues encountered, VDACS staff has been able to target various audiences and commodity groups with additional outreach and education on environmental compliance. These efforts are also focused on specific geographic regions based on trends. This has proven successful in the past, resulting in a decrease in associated water quality problems. For example, by working with the aforementioned state and local agency partners and focusing outreach efforts on land conversion issues (converting forested land to agricultural land), the program has witnessed a decline in sedimentation issues relating to land conversion. These efforts resulted in stronger enforcement of existing state and local programs. Our most recent focus has been equine operations as an increase in water quality issues on these farms has been documented.

VDACS, in close cooperation with local SWCDs, administers this program. Assistance is also provided by DEQ, the Virginia Department of Conservation and Recreation, the Virginia Department of Forestry, the Virginia Cooperative Extension, the Natural Resources Conservation Service, and local governments. In the thirteen year history of the program, over 200 plans have been successfully implemented on farms across Virginia.

Additional information on the ASA Program can be found at the following link:
http://www.vdacs.virginia.gov/stewardship/index.shtml

Code Reference:
§3.2-400 et. seq. *Code of Virginia*

Biosolids VPA Regulations

These regulations and adopted standards govern the land application as well as distribution and marketing of biosolids. Treated sewage sludge, commonly referred to as biosolids is sewage sludge that has been treated for pathogen control and contains acceptable levels of pollutants in accordance with an issued permit.

DEQ has regulatory oversight of all land application permits for biosolids. DCR is cited in the law and regulations with specific roles involving nutrient management of biosolids. The code

and regulations require a number of controls regarding biosolids permitting and management, including a nutrient management plan meeting DCR standards for all sites receiving biosolids.

Site inspections occur before, during and after applications on a significant number of application sites. Part of this inspection process is compliance with the nutrient management plan that governs many of the nutrient and sediment control criteria. These criteria include timing and loading rates for nitrogen applications, as well as phosphorous control criteria like the phosphorous index. Setback distances from features like streams and wells are also incorporated into the plan; verification of these is also part of the inspection process.

A treatment works may apply biosolids on land permitted under its own VPDES permit. However if a treatment works assigns responsibility for off-site land application of biosolids to a third party, a VPA permit is issued to that contractor. Land covered under VPA permits, which are specific to the county and contractor, can receive biosolids applications from numerous sources including those from out of state. VPDES permitted application sites are specific to the permitted treatment works.

As part of statutory law a non-reverting fund was established from the fees paid by land appliers of biosolids. This fund is used to administer the DEQ biosolids program as well as two biosolids nutrient management oversight positions at DCR. A process to amend the regulations to further improve the management of land receiving biosolids has been initiated. This amendment is currently proceeding through the administrative process and is expected to take effect in 2011, at the earliest.

Code Reference:
§62.1-44.19:3, §10.1-104.2 Code of Virginia, Regulations 9VAC25-31-10 et. seq, 9VAC25-32-10 et. seq, 4VAC 5-15-10 et. seq.

Chesapeake Bay Preservation Act

The regulations pertaining to the Chesapeake Bay Preservation Act, which apply to 84 localities within the Tidewater region of Virginia, contain several provisions addressing pollutant loadings resulting from agricultural practices. These provisions are required to be carried out by the local governments that are responsible for the implementation of the Bay Act in a manner that is consistent with these regulations. One key provision is the requirement all active agricultural lands have a soil and water quality conservation assessment conducted. This assessment is to evaluate the effectiveness of existing soil erosion and sediment control and nutrient management practices. Where necessary a plan may outline additional practices to ensure that water quality protection is being accomplished.

Another key provision of the Bay Act regulations allows for agricultural encroachments into the required 100-foot buffer adjacent to streams, wetlands and tidal shores provided that, in the opinion of the soil and water conservation district, adequate nutrient management, pest chemical or control erosion control is being implemented on the adjacent land.

Code Reference:
§ 10.1-2103 Code of Virginia, 9VAC 10-20-120 9; 9VAC 10-20-130 5 b.

Nutrient Management Training and Certification Program

This program is operated to train and certify persons who prepare nutrient management plans. To be eligible for certification, an individual must meet education and experience requirements, achieve a passing score on both a core and practical examination and maintain the required continuing education requirements.

Agriculture and turf and landscape certifications are offered. Individuals certified to develop nutrient management plans are required to develop plans consistent with promulgated technical criteria and must provide summary reports to DCR annually. Planners from both categories must use criteria applicable to the specific plan they are writing.

Nutrient management plans developed by certified planners must be developed consistent with Virginia Nutrient Management Training and Certification regulations and the Virginia Nutrient Management Standards and Criteria, Revised October 2005, which is promulgated by reference. The regulations were revised in 2005 to require timing of nutrient applications that correspond more closely to times of maximum crop nutrient uptake and to require that all NMPs be nitrogen and phosphorus based. These 2005 revisions expanded the Standards and Criteria to give planners additional information needed to write all the components of a nutrient management plan. Examples of these additions include the description of environmentally sensitive sites for potential nutrient loss, including a table identifying environmentally sensitive sites by soil type; a table listing Phosphorus Crop Removal to establish coefficients for many crops and vegetables and equations to convert Mehlich III phosphorus soil tests to Mehlich I so all phosphorus recommendations are determined by the same standard. This Standards and Criteria manual also describes in detail three acceptable methods of determining phosphorus applications when dealing with the application of organic materials to crops.

There are 329 planners in the agriculture category, most of who practice within the Chesapeake Bay watershed. Certified planners are subject to random inspections of plans prepared to check compliance with promulgated plan criteria. Certificates may be revoked if plans do not meet the criteria contained in the Nutrient Management Training and Certification Regulations (4 VAC-5-15-10 et. seq.). Nutrient management plans are required to be developed by certified nutrient management planners in all instances where NMPs are currently required in Virginia, including VPDES and VPA animal and poultry waste permits, biosolids use permits, state cost-share program recipients for practices requiring NMPs. A software program (NutMan) is available to certified nutrient management planners to assist them in developing NMPs.

Code Reference:
§10.1-104.2 Code of Virginia, Regulation 4 VAC 5-15-10 et. seq.

Nutrient Management Plan Requirement for State Owned Lands

The Code of Virginia requires that all state agencies, state colleges and universities, and other state governmental entities that own land upon which fertilizer, manure, sewage sludge or other compounds containing nitrogen or phosphorus are applied to support agricultural, turf, plant growth, or other uses shall develop and implement a nutrient management plan for such land. For all state-owned agricultural and forestal lands where nutrient applications occur, state agencies, state colleges and universities, and other state governmental entities must submit site-specific

individual nutrient management plans prepared by a DCR-certified nutrient management planner. The code provides for a partial exemption where state agencies are conducting research specifically involving nutrient application rate and timing on state-owned agricultural and forestal lands. In that case, such lands still require a nutrient management plan but are exempt from the application rate and timing provisions.

For all state-owned lands other than agricultural and forestal lands where nutrient applications occur, state agencies, state colleges and universities and other state governmental entities must submit nutrient management plans prepared by a certified nutrient management planner. State agencies, state colleges and universities, and other state governmental entities are required to maintain and properly implement any such nutrient management plan or planning standards or specifications on all areas where nutrients are applied. DCR has authority to conduct periodic inspections as part of its responsibilities authorized under this section.

Code Reference:
§10.1-104.4 Code of Virginia

Poultry Waste Permits

Poultry operations with at least 200 animal units (the equivalent of 20,000 chickens or 11,000 turkeys) that do not require a Virginia Pollutant Discharge Elimination System permit have been required since 2001 to operate in compliance with VPA poultry waste permits. This also applies to smaller poultry-producing operations that might be deemed to cause water pollution.

The permits require producers to implement enforceable DCR-approved, site-specific nutrient management plans, proper waste storage methods, and waste tracking and accounting procedures. The regulations also govern use of poultry litter that has been transferred off the production site by specifying such things as approved application rate determination methods, timing of application, storage provisions and recordkeeping requirements for the end-user(s) of the litter.

Registration with the state is also required for brokers of poultry waste. They must also comply with recordkeeping and storage requirements. Virginia Pollution Abatement poultry waste permits have a maximum term of 10 years. However, nutrient management plans required by the permits must be revised every three years if land application is included or every five years if all litter is transferred off-site. Permitted poultry-producing farms are inspected at least annually. In addition to complying with all conditions of the permits, producers and brokers must attend training sessions at least once every five years.

As of April, 2010, there are 865 poultry operations with VPA permits and active nutrient management plans in the Commonwealth of Virginia.

Code Reference:
§62.1-44.17:1.1 and §62.1-44.17:1.1 *Code of Virginia*, Regulation 9 VAC 25-630-10 et. seq.

Precision Nutrient and Pesticide Application Equipment Tax Credit

This incentive program provides a 25 percent state income tax credit up to $3,750 annually to encourage farmers to purchase more accurate nutrient and pesticide application equipment, which meet state specifications. Eligible equipment categories include: manure spreaders, pneumatic fertilizer applicators, sprayers for pesticides or liquid fertilizers, tramline equipment, and starter fertilizer attachments for planters. The program also requires the farmer to have a nutrient management plan.

Code Reference:
§58.1-337 and 58.1-436 *Code of Virginia*

Virginia Pollutant Discharge Elimination System Animal Waste Permits

CAFOs, as defined by the EPA CAFO Rule, are regulated in Virginia under the Virginia Pollutant Discharge Elimination Permit Program. A CAFO which discharges or proposes to discharge has a duty to apply for coverage under a VPDES general or individual permit. In response to the changes to the EPA CAFO Rule which became effective in December 2008, Virginia amended the VPDES Regulation which became effective March 3, 2010. In a letter dated June 14, 2010, EPA approved the VPDES CAFO Regulatory provisions of the Permit Program. In order to conform to these regulatory changes, DEQ is in the process of modifying the CAFO permit program with input from EPA Region III and our environmental and agricultural stakeholders.

More information regarding the DEQ animal waste permit and inspection program can be found at the following link: http://www.deq.virginia.gov/vpa/cafo.html.

Code Reference:
§62.1-44.15 and §62.1-44.17:1 *Code of Virginia;* Regulation 9 VAC 25-191-10 et. seq.

Virginia Pollution Abatement (VPA) Animal Waste Permits

The DEQ animal waste program is regulated under both the Virginia Pollution Abatement Permit Regulation Program and the Virginia Pollutant Discharge Elimination Permit Regulation Program (see above).

> An *animal feeding operation (AFO)* is defined as a lot or facility where animals are stabled or confined for a total of 45 days or more in any 12-month period, and where crops or vegetative growth is not maintained in the normal growing season over the lot or facility.

Animal feeding operations that confine more than 300 animal units of livestock and handle liquid manure are required to obtain coverage under either a VPA general or individual permit.

Poultry operations that confine more than 200 animal units of poultry (20,000 chickens or 11,000 turkeys) must register for coverage under the Virginia Pollution Abatement General Permit for Poultry Waste Management. In addition, poultry litter, which is transferred from a poultry grower in Virginia, must be utilized and stored in accordance with 9VAC25-630 et seq.

Recordkeeping is required for the land application and transactions of poultry which is transferred offsite of the generator.

Code Reference:
§62.1-44.17:1 *Code of Virginia;* Regulation 9 VAC 25-32-10

Virginia Revolving Loan Fund

Agricultural BMPs are eligible for funding under the Virginia Revolving Loan Fund. The 1999 General Assembly approved legislation allowing the Virginia Resource Authority with recommendations by DEQ to provide low interest loans to address nonpoint source pollution from agricultural activities.

DEQ will prioritize applications for loan assistance on a statewide basis. Applications for practices that are expected to provide the greatest water quality benefit will be given the highest funding priority. Applications considered to impact segments on the 303(d) Impaired Waters List receive high priority. Those impacting waters on the 305(b) Threatened List, DCR high priority waters, or the Nutrient Enriched Waters List will receive a medium priority rating. All other applicants are given lower priority.

Code Reference:
62.1-229.1, §58.1-337 and 58.1-436 *Code of Virginia*

5.2. Accounting for Growth

Most agricultural land uses are decreasing as land is converted to other uses in Virginia's Chesapeake Bay watershed. There are however, a few sub-sectors of agriculture that are projected to experience growth. Sod farms, nurseries, vineyards and biofuel feedstock are all growing agricultural sub-sectors. It is expected that most of this growth will result from the conversion of row crop, hay or pasture land uses.

To address the potential for increasing loads, we will investigate these growing sub-sectors and study a variety of BMPs to reduce their loads. New sod farms may need to develop and implement nutrient management plans and new nurseries may need to implement runoff and leachate containment and reuse systems to reduce TN and TP losses by 75 percent from standard practices. New vineyards are normally sited on former agricultural lands. Due to low nutrient usage, they are not expected to increase nutrient losses but would be subject to soil erosion control conservation plans to control sediment losses. The resulting loads are projected to produce no net increase over the previously existing land use as a result of growth.

CAFO is another growing sub-sector of agriculture. Statewide, the number of farms has been decreasing steeply, but the total number of animals has been declining only slightly. The result is an increase in the number of animals per farm. This growth is likely to result in the conversion of non-CAFO animal agriculture to CAFOs and a shift from load allocation to waste load allocation. Because the total number of animals statewide is declining slightly, the growth is not expected to produce a net increase in load. To accommodate this shift toward fewer, but larger

farms, the WLA/LA for AFO Acres will be reserved for potential future WLA for larger CAFOs that need a NPDES permit.

Virginia recognizes the ideal approach would be to track growth separately in each of the segment-sheds. However, this approach would be overly cumbersome to administer and presents potential inequities across the state. Therefore, growth will be tracked at the major basin scale.

5.3. Gap Analysis

Significant progress has been achieved to date through a variety of programs detailed in section 5.1 and specific initiatives. Several tables in Section 5.4 show estimates of current 2009 progress loads and associated BMP levels for nitrogen, phosphorus, and sediment, as well as agriculture target loads for 2017 and the agriculture allocations for 2025.

Agricultural Stewardship Act

The following are found to be existing gaps in the ASA Program:

1. Limited resources. ASA staff has been able to keep up with current workloads, but additional staffing is needed to ensure that the increasing number of active ASA plans are implemented and maintained. The number of site visits and compliance inspections continue to increase.

2. The current amount of time dedicated to outreach depends upon new case workload and staffing resources. ASA staff recognizes the importance of providing education and outreach opportunities to the agricultural community.

3. VDACS and DEQ recognize there are AFOs which may require technical assistance but fall below the existing regulatory threshold which requires a VPA or VPDES permit.

5.4. Strategy to Fill Gaps

Significant progress has been made to date through a variety of programs and specific initiatives. Much remains to be done in order to achieve the reductions necessary to meet 2017 and 2025 allocation loads. The goal of this section is describe alternatives that would meet final reduction targets.

For more than six years Virginia has focused considerable resources on the implementation of "Five Priority Practices". Each "practice" is more accurately described as a suite of BMPs, each having certain distinct, unique specifications. These practices have been identified as being those that are the most efficient and effective in reducing nutrients and sediments from entering state waters. The priority practices are

- Nutrient Management,
- Vegetative Buffers (grass and forest),
- Conservation Tillage,
- Cover Crops, and
- Livestock Stream Exclusion.

Virginia has advanced the implementation of these practices through:

- An aggressive voluntary nutrient management program and mandatory requirements for farms having confined animal permits or biosolids permits
- The "ramping" up of considerable technical staff employed by 47 soil and water conservation districts that work directly with agricultural producers across the state. The staff assists with BMP implementation whether practices are implemented voluntarily or with incentives from state, federal and other incentive programs.
- Financial incentives (cash and tax credits) offered through the Virginia Agricultural BMP Cost-Share Program
- An extensive marketing/PR campaign primarily focused in the Chesapeake Bay basin using the expertise of a private marketing firm

Within the groups and agencies that represent agricultural and conservation interests there is growing acceptance that the state's suite of five priority practices provides a broad, comprehensive approach in achieving many natural resource improvements including water quality. In the past six years Virginia has dedicated more than $100 million toward incentives and technical assistance for implementing agricultural BMPs. Significant levels of the priority practices have been achieved, but much more remains to be done.

As consideration is given to establishing broader BMP expectations, a phased approach including communication and education efforts to reach affected agricultural producers will be necessary. During this multi-year period, producers will be encouraged to participate in agricultural incentive programs to help offset the cost of BMP implementation. Financial incentives and tax credits may be altered or expanded to support increasing BMP implementation.

Further, there is growing recognition that farmers are voluntarily implementing significant quantities of priority practices and other BMPs without acceptance of incentives from state or federal programs. In other cases, there are practices in place currently required by laws and regulations which have not been fully accounted for in state progress reporting. To better assess the magnitude of BMPs implemented by independent actions of farmers across the state, Senate Bill 346 was enacted during the 2010 session of the Virginia General Assembly.

Be it enacted by the General Assembly of Virginia:

1. That the Code of Virginia is amended by adding in Article 7 of Chapter 2 of Title 2.2 a section numbered 2.2-220.3 as follows:

§ 2.2-220.3. Development of strategies to collect land use and conservation information.

The Secretary of Natural Resources, with assistance from the Secretary of Agriculture and Forestry, shall establish and maintain a database of the critical data attributes for onsite best management practices implemented in the Commonwealth that limit the amount of nutrients and sediment entering state waters. The database shall document voluntary actions taken by the agricultural and silvicultural sectors and should enable the application of the collected data towards projections of progress towards Virginia's water quality goals by sharing the data with the appropriate federal or state agencies. To the extent possible or appropriate, the database shall (i) be uniform in content and format to applications in the other states of the Chesapeake Bay watershed, (ii) maintain the confidentiality of information, and (iii) use existing methods of data collection including reports to the U.S. Department of Agriculture's Farm Service Agency, soil and water conservation districts, and localities for the purpose of land use valuation. Any information collected pursuant to this section shall be exempt from the Freedom of Information Act (§ 2.2-3700 et seq.).

2. That the Secretary of Natural Resources, by November 1, 2010, shall submit a report to the Governor and the Chairmen of the House Agriculture, Chesapeake and Natural Resources Committee and the Senate Agriculture, Conservation and Natural Resources Committee on the establishment of the database and associated costs and responsibilities for its long-term maintenance.

3. That an emergency exists and this act is in force from its passage.

DCR, under direction of the Secretary of Natural Resources, is taking the lead to pursue this action. The report was submitted in November 2010 summarizing the strategy and resources needed to collect, store and report such voluntary agricultural and forestry BMP data. While better quantification of existing BMPs will be helpful in making progress toward nutrient and sediment reduction goals, it will not fully close the gap. The BMP data collected will be limited to the list of BMPs that are recognized by EPA for the Chesapeake Bay model and for other impaired water with TMDLs statewide. All reportable practices must meet the required USDA Natural Resources Conservation Service standards and specifications for agricultural BMPs or Virginia Department of Forestry (DOF) stands and specifications for Forest Harvesting BMPS and be field verified. Virginia's 47 Soil and Water Conservation Districts will be the primary mechanism for collection, verification and data entry for agricultural BMPS. DOF will collect, verify and report voluntary forest BMP data. DCR's web-based Agricultural BMP Tracking Program is currently used by all 47 SWCDs and will be modified for voluntary BMP entry, storage and reporting. The strategy calls for a multi-phased approach with Phase I pilot effort beginning in 2011 and the Phase II expansion statewide effort beginning in 2012 and continuing with Phase III in 2013.

Additional staff resources will be sought for the Agricultural Stewardship Program by VDACS to better respond to the increasing number of water quality inquiries. Increases in state and federal cost-share funding, as well as an increase in the number of SWCD technical staff will help ensure compliance.

VDACS and DEQ plan to seek assistance from agricultural organizations such as the Virginia Farm Bureau, Virginia Agribusiness Council, other agricultural commodity groups, local governments, Soil and Water Conservation Districts, and others interested in water quality issues regarding an increase in education and outreach efforts. The goal would be to enhance the environmental awareness among their respective memberships and stakeholders regarding the Chesapeake Bay TMDL, utilization of the ASA, and the importance of implementing conservation practices.

VDACS has a successful working relationship with the DEQ Animal Waste Permit Program staff regarding the response to water quality issues, as well as working out jurisdictional issues involving small AFOs. Currently underway is a plan for a memorandum of agreement (MOA) between the two agencies on how to enhance this relationship to better respond to water pollution issues involving small, un-permitted AFOs. This MOA will detail the partnership and allow both agencies to better utilize their existing programs and resources regarding these operations. It is anticipated that this agreement will be completed in early 2012 and implemented immediately thereafter.

Implementation of agricultural BMPs approaching the highest practicable levels is necessary to achieve nutrient and sediment reduction thresholds. Table 5.4-1 summarizes the list of BMPs included in Virginia's input deck for the WIP. The table specifies BMP by BMP, the needed percentage of implementation and also provides the framework that is expected to be necessary to achieve the implementation.

Table 5.4-1 Current Progress and Projected Agriculture BMP Implementation Levels for 2017 and 2025 using P5.3 Model

Input Deck BMPs	2009 % Treatment	2017 Coverage Level	2025 Coverage Level
Forest Buffers Riparian Cropland and Specialty Crops	1.3 %	3 %	5 %
Forest Buffers Riparian Hay	0 %	1 %	5 %
Forest Buffers Riparian Pasture	8 %	10 %	10 %
Grass Buffers Riparian Cropland and Specialty Crops	9 %	30 %	90 %
Grass Buffers Riparian Hay	0 %	1 %	90 %
Grass Buffers Riparian Pasture	12 %	15 %	20 %
Land Retirement Ag	3 %	5 %	5 %
Upland Tree Planting Ag	0.7 %	5 %	5 %
Wetland Restoration	0.05 %	0.15 %	0.20 %
Continuous No-Till	11 %	35 %	60 %
Conservation Till (includes CNT acres)	57 %	80 %	90 %
Conservation Plan Cropland and Specialty Crops	60 %	65 %	95 %
Conservation Plan Hay	7 %	40 %	95 %
Conservation Plan Pasture	41 %	50 %	95 %
Cover Crop Standard planting	4 %	10 %	10 %
Cover Crop Early planting	3 %	10 %	20 %
Commodity Cover Crop Early planting	4 %	10 %	15 %
Stream Protection with Fencing (linear feet)	15 %	45 %	95 %
Alternative Water Pasture	2 %	2 %	0 %
Prescribed Grazing Pasture	20 %	40 %	60 %
Animal Waste Management System	25 %	34 %	95 %
Nutrient Management Cropland & Specialty Crops	59 %	90 %	95 %
Nutrient Management Hay	18 %	90 %	95 %
Nutrient Management Pasture	5 %	15 %	20 %
Non Urban Stream Restoration (linear feet)	0.02%	0.11%	0.22%
Poultry Mortality Composters	-	100%	100%
Swine Mortality Composters	-	95 %	95 %
Water Control Structures	-	-	1,000 acres
Manure Transport (Exported from Rockingham & Page to Outside Bay Watershed)	-	5,000 tons	75,000 tons
Manure Transport (Exported from Rockingham & Page but within Chesapeake Bay Watershed)	-	75,000 tons	75,000 tons
Poultry Phytase Phosphorus 30% Reduction in Broilers and Turkeys	60 %	100 %	100 %
Swine Phytase Phosphorus 35% Reduction	60 %	100 %	100 %
Precision / Decision Agriculture on Cropland	-	50,000 acres	50%
Container Nursery and Greenhouse Runoff / Leachate Recovery	-	-	95%

Following is a summary of eventual program delivery mechanisms believed necessary to attain the BMP coverage levels for 2017 and 2025.

Table 5.4-2 Expected Eventual Program Delivery Mechanism to Achieve Agriculture BMP Implementation Levels

Input Deck BMPs	Incentives	Requirements/ Other Mechanisms
Forest Buffers Riparian Cropland and Specialty Crops	√	
Forest Buffers Riparian Hay	√	
Forest Buffers Riparian Pasture	√	
Grass Buffers Riparian Cropland and Specialty Crops	√	√
Grass Buffers Riparian Hay	√	√
Grass Buffers Riparian Pasture	√	√
Land Retirement Ag	√	
Upland Tree Planting Ag	√	
Wetland Restoration	√	
Continuous No-Till	√	
Conservation Till (includes CNT acres)	√	√
Conservation Plan Cropland and Specialty Crops	√	√
Conservation Plan Hay	√	√
Conservation Plan Pasture	√	√
Cover Crop Standard planting	√	
Cover Crop Early planting	√	
Commodity Cover Crop Early planting	√	
Stream Protection with Fencing (linear feet)	√	√
Alternative Water Pasture	√	
Prescribed Grazing Pasture	√	
Animal Waste Management System	√	√
Nutrient Management Cropland & Specialty Crops	√	√
Nutrient Management Hay	√	√
Nutrient Management Pasture	√	√
Non Urban Stream Restoration (linear feet)	√	
Poultry Mortality Composters	√	√
Swine Mortality Composters	√	√
Water Control Structures	√	
Manure Transport (Outside Bay Watershed)	√	√
Manure Transport (Exported from Rockingham & Page)		√
Poultry Phytase Phosphorus 30% Reduction in Broilers and Turkeys		√
Swine Phytase Phosphorus 35% Reduction		√
Precision / Decision Agriculture	√	
Container Nursery and Greenhouse Runoff / Leachate Recovery		√

The agriculture community is committed to reducing nutrient and sediment loads through priority practices and other best management practices. To assist in achieving the implementation of the reductions from agriculture, a fully implemented resource management plan (RMP) will be deemed to be in compliance with the WIP and any associated law or regulation, and may include implementation of the following relevant practices as outlined below to address the individual water quality issues of each farming operation in the Commonwealth.

For all cropland or specialty crops, the RMP shall include the following components as needed, based upon an individual on-farm assessment to determine which practices will result in needed nutrient and sediment reductions: (1) a nutrient management plan that meets the specifications of DCR's Nutrient Management Program; (2) 35 foot minimum forest or grass buffer meeting NRCS practice specifications 390 or 391 between cropland and all perennial streams; (3) a soil conservation plan that achieves a maximum soil loss rate of "T," as defined by USDA-NRCS; (4) cover crops meeting specifications of DCR's Agricultural Best Management Practices (BMP) Manual planted following all summer annual crops such as corn, cotton, vegetables, and tobacco if such summer annual crops received at least 50 pounds per acre of nitrogen; (5) an assessment of all BMPs currently in place, whether as part of a cost-share program or through voluntary implementation to determine their adequacy in meeting nutrient and sediment reduction objectives; and (6) such other BMPs as may be developed and credited in the Bay Model.

For all hayland, the RMP shall include the following components as needed, based upon an individual on-farm assessment to determine which practices will result in needed nutrient and sediment reductions: (1) a nutrient management plan that meets the specifications of DCR's Nutrient Management Program; (2) 35 foot minimum forest or grass buffer meeting NRCS practice specifications 390 or 391 between hayland and all perennial streams; (3) a soil conservation plan that achieves a maximum soil loss rate of "T," as defined by USDA-NRCS; and (4) an assessment of all BMPs currently in place, whether as part of a cost-share program or through voluntary implementation to determine their adequacy in meeting nutrient and sediment reduction objectives; and (5) such other BMPs as may be developed and credited in the Bay Model.

For all pasture, the RMP shall include the following components as needed, based upon an individual on-farm assessment to determine which practices will result in needed nutrient and sediment reductions: (1) a nutrient management plan that meets the specifications of DCR's Nutrient Management Program if the pasture received any application of mechanically applied manure, poultry litter, or biosolids within the past three years or will receive such applications in the future; (2) a livestock stream exclusion system;(3) a pasture management plan or soil conservation plan that achieves a maximum soil loss rate of "T," as defined by USDA-NRCS; (4) an assessment of all BMPs currently in place, whether as part of a cost-share program or through voluntary implementation to determine their adequacy in meeting nutrient and sediment reduction objectives; and (5) such other BMPs as may be developed and credited in the Bay Model.

Except for existing requirements, implementation will be by voluntary means until such time as agricultural load targets are not achieved for a particular milestone period. If the agriculture sector load for a milestone period exceeds the target sector load, authorization to develop and implement mandatory actions or programs will be requested from the legislature, provided cost-share funding sufficient to achieve the milestone load reductions had been made available to producers during the same milestone period. Virginia, along with expected NRCS funding levels, has sufficient funding to cover the agricultural BMP funding needs identified in the WIP through much of the 2013 milestone. Additional federal EQIP funding will be needed. However, the system for accounting of voluntary BMPs is expected to significantly contribute to accomplishments for the 2013 milestone and beyond.

In assessing any shortfall, DCR, in consultation with VDACS, will consider the existence of extraordinary circumstances (such as natural disaster or market conditions), the provision of adequate cost-share funding, and the provision of adequate technical assistance and determine which legislative action is appropriate. The request for legislative action will be considered to be proposed legislation requested to the Governor by DCR.

In deciding the specific practices for which a legislative action would be proposed in response to a milestone shortfall, DCR will assess, in consultation with VDACS, which of the following approaches or combination of approaches best addresses the shortfall on farms that have not implemented a current RMP to meet necessary water quality improvements:

Potential Action
• Legislative request for mandatory Nutrient Management Plans sufficient to ensure achievement of 2017 and 2025 targeted percentage of acreage for NMPs.
• Legislative request for mandatory Soil Conservation Plans to control soil loss to "T" or less sufficient to ensure achievement of this practice on 2017 and 2025 targeted percentage of acreage for Soil Conservation Plans.
• Legislative request for mandatory livestock stream exclusion sufficient to ensure achievement of this practice on 2017 and 2025 targeted percentage of treatment.
• Legislative request for mandatory grass or forest buffers between all cropland, specialty crop, and hay fields sufficient to ensure achievement of this practice on 2017 and 2025 targeted percentage of treatment.

The magnitude of any agricultural sector shortfall; using the average for nitrogen, phosphorus, and sediment; in achieving a particular 2- year milestone will also be a factor in determining which of the specific legislative proposals will be pursued. Finally, if agricultural load reductions exceed the goal of a specific milestone period, such further reduction will be credited toward achievement of the successive milestone reduction targets.

Table 5.4-4 Agriculture Sector Target Loads by Milestone Period

Milestone Year Ending Year	2009 Progress	2013	2015	2017	2025
Agricultural Sector Load Targets (Sum of All Basins)					
Nitrogen (Lbs)	21,595,047	20,669,972	19,436,539	17,894,747	15,427,881
Phosphorus (Lbs)	3,090,060	2,941,112	2,742,514	2,494,267	2,097,071
Sediment (Tons)	1,066,368	1,023,703	966,816	895,707	781,933

Note: this table applies the following percentage reductions for the milestone periods through 2017:

Ending 2013: 5% + 10% = 15%

Ending 2015: 5% + 10% + 20% = 35%

Ending 2017: 5% + 10% + 20% + 25% = 60%

Descriptions of Input Deck Levels and Practices

- **Nutrient Management:** Nutrient management plans are already required for VPDES and VPA confined livestock and poultry permits and for biosolids application sites. The state will consider broader incentives and requirements for nutrient management plans if needed, written by Virginia certified nutrient management planners, to cover 90 percent of available cropland, specialty crops and hay with implementation by 2017 and 95% by 2025. This action is necessary to achieve implemented nutrient management on 95 percent of the available cropland, specialty crops, and hay acreage.

  Since pasture acres are frequently under fertilized unless manure or biosolids are used, the Commonwealth will not focus efforts on pastures that receive only commercial fertilizer. Nutrient management plans will be expected on all pasture receiving biosolids or manures.

  A phased in approach focusing on the largest farms first would help ease the burden on producers, allowing more adjustment time for the smaller operations and spreading technical service provider workload over a longer period of time. Federal and state financial incentives to help defray costs for the nutrient management component of resource management plans developed by certified individuals. This will assist producers in transitioning to a system where nutrient management plans are expected.

- **Vegetative Buffers (grass and forest)**: To achieve 95 percent implementation of 35' forest and grass buffers on crop and hay lands it will be necessary to pursue an expectation for buffers. Otherwise, it could be incorporated as a component of state resource management plans. Farmers would have the option to choose between grass and forested buffers, with grass buffers being the minimum expected. Federal or state incentives could be provided to encourage producers to "upgrade" to a forested buffer. The Commonwealth believes that fulfillment of grass and forest buffers on 30 percent of pastures that border riparian waterways can be achieved through farmer participation in financial incentive programs, assuming there is a concurrent commitment for livestock stream exclusion. Implementation of such buffers could begin during the 2011-2017 period, but would not be expected to reach maximum implementation until the 2017 to 2025 period.

  Such buffers would only be required along perennial surface waters (blue line features on pre-1994USGS topographic maps), unless a farmer chose to use the phosphorus index to determine phosphorus applications, in which case buffers or application setbacks from intermittent streams would also be required if needed to justify a specific rate of phosphorus application.

- **Conservation Tillage and Soil Conservation Plans:** At the level of 90 percent implementation of conservation tillage on cropland and 95 percent for soil conservation plans on cropland, hay, and pasture, it will be necessary to establish an expectation for implemented soil conservation plans to achieve a maximum soil loss rate of "T," as defined by USDA-NRCS as the tolerable rate of soil loss expressed as tons per acre. In addition to this being incorporated into resource management plans, other structural practices such as grass waterways will be needed.

The Commonwealth believes that either expectation above for soil conservation plans along with other voluntary and incentive practices would result in conservation tillage being implemented on 90 percent of cropland (inclusive of specialty cropland). The expectation for a soil conservation plan, or a soil conservation component to resource management plans should be staged to be implemented on the largest farms by 2017, with moderate and smaller size farms to follow during the 2017 to 2025 period.

- **Cover Crops:** Establishing and managing a cover crop to salvage the residual nutrients comes at considerable expense to agricultural producers, with limited financial return. Achieving cover crops with standard planting dates on 10 percent of the available cropland, 20 percent with early planting dates and 15 percent of harvestable (commodity) cover crops will be accomplished through financial incentive programs and the accounting of acreage farmers planted voluntarily.

- **Livestock Stream Exclusion:** Achieving livestock stream exclusion on 95 percent of perennial waterways will require significant increases in financial and technical assistance. According to the 2007 Census of Agriculture, approximately 27,000 farms in Virginia manage roughly 1.5 million cattle. Slightly less than half of these farms (42%) manage 20 cows or less. These smaller operations account for only 6% of the state's cattle. Under an expectation that farms with 20 cows or more will exclude livestock by 2025, 94% of the cattle (impacting 58% of all farms that manage cattle), would be excluded from riparian waterways. Achieving livestock exclusion on 95% of riparian waterways will require the establishment of a new expectation within resource management plans.

Concurrent with the establishment of an implementation expectation, the Commonwealth would establish a cost-share payment schedule that rewards early adopters by paying a larger percentage of practice installation costs in the first few years.

Other Agricultural BMPs contained in the input deck:

- **Prescribed Grazing**: The Commonwealth expects that fulfilling prescribed grazing on 60 percent of available pasture acres will be accomplished using education, technical guidance from trained personnel, and financial incentives offered through state and federal programs, coupled with an expectation for livestock stream exclusion and pasture conservation planning.
- **Agricultural Land Retirement** to account for approximately 5 percent of available lands is expected to be achieved through a combination of financial incentives provided through state and federal programs such as CRP and normal attrition of farmland, excluding land to be developed.
- **Upland Tree Planting** on 5 percent of agricultural lands may also be accomplished through the use of financial incentives coupled with expected conversion of farmland, particularly highly erodible lands.
- **Animal Waste Management Systems** may be installed and managed on 95 percent of the concentrated livestock and poultry operations. Better accounting for practices already

required, such as proper poultry litter storage presently required by the Poultry Waste Management Regulation, will need to occur before 2017. Full achievement may not be accomplished without establishing new expectations for farms below current permit thresholds, but this would not be initiated until the 2017 – 2025 period.

- **Continuous No-Till** consists of implementing a no-tillage program for a minimum of 5 consecutive years that maintains a minimum of 60% residue cover at all times with no soil disturbance during the 5 year period. Implementation of this practice is expected to be achieved on 35 percent of available cropland acres by 2017 through a more accurate accounting of acreage voluntarily managed through this cultivation system, through farmer acceptance of financial incentives offered through state and federal programs, and trends increasing the use of this system due to fuel and labor savings. Projected potential coverage by 2025 is 60% of cropland. DCR believes that EPA needs to allow for "stacking" of this BMP with other practices such as cover crops and nutrient management, and requests that the practice be reevaluated by the Chesapeake Bay Program to allow stacking with other BMPs.
- **Water Control Structures** will be promoted though financial incentives and is expected to result in a total of 1,000 acres of managed water control structures targeted to the following counties/cities: Accomack, Chesapeake, Gloucester, Northampton, and Virginia Beach.
- **Poultry Mortality Composters**: The Poultry Waste Management Act and related regulations require proper disposal of poultry mortality and does not allow burial of dead birds except under extraordinary circumstances. Therefore, complete compliance with this requirement is expected to be achieved by 2017. Incineration or rendering of dead birds is considered to be at least as beneficial in nutrient reduction as is mortality composting, so will be reported in aggregate with the composting practice.
- **Swine Mortality Composters**: Proper disposal of swine mortality and prohibition of burial will be achieved through enforcement of existing state laws and regulations to achieve 95 percent of the industry by 2017. Incineration or rendering of swine is considered to be at least as beneficial in nutrient reduction as is mortality composting, so will be reported in aggregate with the composting practice.
- **Poultry Manure Transport (Outside Bay Watershed)** from Rockingham and Page counties to destinations outside the Chesapeake Bay Watershed will be achieved for 5,000 tons annually of poultry litter by 2017 through a joint incentive program between the Commonwealth and the poultry integrator companies. The Commonwealth is in the exploratory stages with a major energy firm to determine the impact and feasibility of a potential poultry litter to energy project in the Shenandoah Valley which would burn litter and export or landfill the residual materials. By 2025, this practice would impact 75,000 tons annually provided the residual materials are landfilled or exported outside the watershed.
- **Poultry Manure Transport (Within Bay Basin)** from Rockingham and Page counties to destinations inside the Chesapeake Bay Watershed, but beyond these two source counties will be achieved for 75,000 tons annually by 2017 and thereafter through enforcement of the grower and end-user requirements of the Poultry Waste Management regulations. Tracking data to verify this transport will be collected by DEQ staff on their annual inspections of regulated poultry farms.

- **Poultry Phytase Phosphorus Reductions** may be achieved to result in a net reduction of phosphorus in broiler and turkey manure by 30 percent, including an expected reduction of approximately 24 percent in concentration of phosphorus in broiler manure coupled with a volume reduction of approximately 6 percent in broiler litter generation due to changes in management as compared to early 1990s pre-Phytase production practices. The 30 percent net reduction is expected to be achieved by 2014 through continuation of individual MOAs between DCR and each poultry integrator company. If the 30 percent reduction is not achieved by 2014, additional measures could be considered.
- **Precision / Decision Agriculture** is expected to be implemented on a pilot basis on 50,000 acres of cropland by 2017 and has potential to be implemented on 50% of cropland by 2025 through a combination of fertilizer industry cooperation and incentives, if needed.
- **Container Nursery and Greenhouse Runoff and Leachate Collection and Reuse** will be implemented by 95 percent of the area producing commercial nursery and greenhouse stock by 2025. This level would likely require additional authorities. Initially focusing on new or expanding production facilities as a way to manage increases in nutrient and sediment losses. Followed by expectations for existing operations to adopt collect and reuse runoff and leachate between 2017 and 2025. Approval of a new BMP efficiency for this practice will be sought from the Chesapeake Bay Program. The practice will specify lined return ditches or similar collection methods to lined holding ponds retaining all excess irrigation water runoff or leachate and capturing the first one-half to one-inch of stormwater runoff. Water would be recirculated for irrigation in nursery and greenhouse operations or irrigated at the proper times of year on other vegetation capable of trapping nutrients, such as cool season grasses.
- **Non Urban Stream Restoration** will be achieved through federal and state incentive programs.
- **Wetland Restoration** of prior converted wetlands will be achieved through federal and state incentive programs.

Resource Needs

Implementation of these strategies will require significant increases in dedicated federal and state cost-share funding. An expanded work force will be needed to design and administer the needed levels of agricultural BMPs, many of which will be implemented with financial incentives. Taking a somewhat conservative approach, one full time employee or contractor will likely be needed at each of the 28 soil and water conservation districts located within the Chesapeake Bay watershed. Many variables not presently understood will impact where needs for additional staff resources will be the greatest. So after some initial opportunity to employ, train and focus the initial staff, a more comprehensive assessment of workload and needs will be performed to determine where the additional staff needs are the greatest.

In addition to significant increases in cost-share funding and the building of trained technical Soil and Water Conservation District staff, there is need to carry out a campaign of communication and outreach to connect with agricultural producers to convey expectations and ensure implementation of agricultural BMPs. Use of previously developed marketing products and tools will be utilized.

Virginia's estimates of needed agricultural BMP cost-share funding were projected and summarized in a report submitted to the Chairmen of the House and Senate Finance committees of the Virginia General Assembly in October, 2010. The report (*Annual Funding Needs For Effective Implementation Of Agricultural Best Management Practices (BMPS))* depicts a "ramp up" of funding needed in the Chesapeake Bay basin that begins in 2011 with a need of $22 million and increases each year to a maximum of approximately $63 million with an expectation that this level must be sustained thereafter through at least 2025. These needs include both state and federal funding. In addition, farmer share of the cost of BMPs ranges from 25% to 50% of these costs and would be in addition to the projected needs. This report is updated annually and will need to be revised in 2011 after the TMDL is published to reflect final agriculture allocations.

CHESAPEAKE BAY WATERSHED AG BMP COST-SHARE FUNDING: PROJECTED NEEDS (in millions)

FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
$22	**$24.3**	**$26.6**	**$28.9**	**$31.2**	**$33.9**	**$36.1**	**$38.4**	**$40.7**	**$43**	**$54**	**$56.3**	**$58.6**	**$60.9**	**$63.2**

Agricultural Stewardship Act

1. VDACS is seeking additional resources to better respond to the increasing number of water quality inquiries. Significant increases in state and federal cost-share funding, as well as an increase in the number of SWCD technical staff will help ensure compliance.

2. VDACS and DEQ plan to seek assistance from agricultural organizations such as the Virginia Farm Bureau, Virginia Agribusiness Council, other agricultural commodity groups, local governments, Soil and Water Conservation Districts, and others interested in water quality issues regarding an increase in education and outreach efforts. The goal would be to enhance the environmental awareness among their respective memberships and stakeholders regarding the Chesapeake Bay TMDL, utilization of the ASA, and the importance of implementing conservation practices.

3. VDACS has a successful working relationship with the DEQ Animal Waste Permit Program staff regarding the response to water quality issues, as well as working out jurisdictional issues involving small AFOs. Currently underway is a plan for a memorandum of agreement (MOA) between the two agencies on how to enhance this relationship to better respond to water pollution issues involving small, un-permitted AFOs. This MOA will detail the partnership and allow both agencies to better utilize their existing programs and resources regarding these operations. It is anticipated that this agreement will be completed in early 2011 and implemented immediately thereafter. See Section 5.7 for additional information.

5.5. Contingencies

Many approaches are described above in Section 6.4 to implement agricultural BMPs on significant acreage. Within that section, alternative approaches for several BMPs are presented. If adequate progress is not achieved using those approaches, other additional measures may be considered.

To encompass more area within the Chesapeake Bay Preservation Act, amendments to the law could be considered to designate entire localities as preservation areas under the act to strengthen and require enforcement of agricultural provisions. Also, expanding the act to cover additional localities could be considered.

In addition, the legislature could consider amending §58.1-3231 to require certain best management practices to be used on land enrolled in local use value assessment and taxation programs. Land used for agriculture, horticulture or forestry purposes may be taxed using a special assessment based on current use rather than market value if the local governing body has adopted an ordinance in accordance with §58.1-3230 et. seq. or if such land lies within an agricultural district, forestal district, or an agricultural and forestal district established under §15.2-4300 et. seq. The value of this alternative real estate taxation is significant and almost all counties in the Chesapeake Bay watershed offer this reduced tax option on significant acreage. A condition that implementation of practices including livestock stream exclusion, and nutrient management, and soil conservation components of resource management plans be required for any lands eligible for such local use value assessment and taxation programs could be considered. This would provide an incentive to manage such lands in a manner protective of water quality.

5.6. Tracking and Reporting Protocols

Virginia DCR Cost-Share Technical Requirements, Field Verification & Spot Check Procedures

All reported agricultural BMPs fulfill USDA NRCS standards and specifications that are documented through the USDA Field Office Technical Guide (FOTG), or the BMPs fulfill comparable practice requirements imposed by the commonwealth for such BMPs as nutrient management and forest management. Reported BMPs are certified as meeting the specific practice requirements by technical staff of agencies and organizations that include NRCS, VDOF, SWCDs and DCR.

All reported BMPs are field verified to ensure they fulfilled required standards and specifications. For BMPs that receive state financial incentives, those practices must be fully completed and certified by technical staff before payment is issued to a participating farmer.

BMPs that receive state financial incentives through the Virginia Agricultural BMP Cost Share Program or the Tax Credit Program are subject to field spot checks for the practice lifespan. Spot check guidance and procedures are documented in the Virginia Agricultural Cost Share BMP Manual (BMP Manual). In short:

- A five percent random sample of BMPs installed in the previous program year is conducted. Additionally, five percent of the multi-year BMPs implemented in prior program years that remain within lifespan are sampled
- Annual, agronomic BMPs are not spot checked since the technical oversight and their establishment is verified in the year they are implemented.
- For all BMPs with lifespan greater than one year, field inspections performed by spot checks verify each BMP's existence. Further, field observations allow staff to determine if a BMP is damaged and not performing its intended purpose. Spot checks are performed by SWCD technical staff under the oversight of DCR's Conservation District Coordinators (CDCs)
- Results of all spot checks are reported to DCR. When BMPs are discovered to be damaged or missing, the BMP Manual provides guidance for restoration of such practices, or recovery of the appropriate portion of state financial incentives.

In addition to field review of randomly selected BMPs, DCR staff periodically examines SWCD files and office documents that pertain to implementation of Cost Share and Tax Credit incentive programs to provide greater surety the procedures and guidance specified within the DCR BMP Manual are satisfactorily fulfilled. Another view of program compliance as it relates to each district's administration of financial incentives is performed by an independent auditor under contract with DCR to audit every SWCD no less than once every two years. When audits are performed, the audit begins where the last audit ended so that no break in the audit of each district's financial records occurs.

USDA – NRCS Spot Check Procedures

Spot checking procedures for NRSC cost-share programs are contained in the USDA-NRCS General Manual for Virginia, Title 450 – Technology, Subpart C, VA407.20 Procedure. The procedure requires spot checking of five percent of all practices installed or reported in the state, except where practice exceeds 400 total installations, in which case only 20 installations of that practice need to be checked.

Reporting implemented BMPs

Currently, agricultural BMPs are reported through the Agriculture Cost Share Program Tracking Program. This web based reporting system is supported with an extensive database of BMPs implemented for over 20 years. Data comes directly from the districts and NRCS to quantify conservation practices on the ground. This information is ready for inclusion in the National Environmental Information Exchange Network (NEIEN). Voluntary practices need to be tracked and reported and conservation districts are working on including this data for the tracking program. Nutrient management plan acres need to be included in NEIEN and work is underway to add data in a digital format. DEQ currently tracks poultry litter transport between counties in Virginia. Improvements to this effort need to include transport within county boundaries and direct reporting to NEIEN by DEQ for their program. DEQ also needs to track and report biosolids applications to agricultural fields directly to NEIEN. All Water Quality Improvement Fund (WQIF) projects are tracked and as appropriate recorded in the agricultural cost share

program tracking database, however this data is not added consistently on a quarterly basis like the cost share practices.

Agricultural Stewardship Act

Currently only the BMPs implemented through the state or federal cost-share programs are tracked and reported by the Bay Model and DCR. It is estimated that less than half of the ASA plans contain reported practices. Often the producer chooses to implement the necessary measures on his own, without cost-share assistance. Being able to report more of the practices included in ASA plans through the development of a voluntary BMP database will help facilitate the representation of the actual progress toward nutrient and sediment reduction goals in the Bay Model (see Section 6.4 for additional explanation of Senate Bill 346 and the voluntary BMP database).

5.7 ANIMAL FEEDING OPERATIONS/CONCENTRATED ANIMAL FEEDING OPERATIONS

The DEQ Animal Waste Program falls under both the Virginia Pollution Abatement Permit Regulation (VPA) and the Virginia Pollutant Discharge Elimination Permit Regulation (VPDES). Specifically, the Animal Waste Program utilizes the VPA Permit Regulation 9VAC25-32, the VPA General Permit Regulation For Animal Feeding Operations (AFOs) 9VAC25-192, the VPA General Permit Regulation For Poultry Waste Management 9VAC25-630 and the VPDES Permit Regulation 9VAC25-31 to implement its permit and inspections programs. The DEQ Animal Waste Program, in existent since the 1970's, has evolved into a well established program that EPA has acknowledged for its effectiveness.

The following is a summary of statutory and regulatory program requirements; more information regarding the DEQ animal waste permit and inspection program can be found at the following link: http://www.deq.virginia.gov/vpa/cafo.html.

State Water Control Law - (§62.1-44.15, §62.1-44.17.1, §62.1-44.17.1.1)

§62.1-44.15.(5) of the State Water Control Law provides the DEQ, under the direction of the State Water Control Board, the authority to permit animal feeding operations which do not otherwise meet the criteria stipulated in §62.1-44.17.1 or §62.1-44.17.1.1 which mandate animal feeding operations to obtain coverage under a VPA permit. DEQ uses this authority to permit operations which fall below the mandated VPA criteria, or operations which DEQ determines are unable to comply with the requirements of the general permit regulations. DEQ makes such permit determinations for small AFOs using the designation procedures outlined in 9VAC25-32-250 B.; these procedures include on-site inspections used to identify various site specific factors contributing to potential or actual water pollution.

VPA Permit Regulation - (9VAC25-32, §62.1-44.15)

The VPA Regulation provides the framework for the program and is the mechanism used to issue VPA Individual Permits (IP) to AFOs when coverage under a general permit is not possible. Individual permits include the minimum requirements contained in the AFO and Poultry Waste General Permit (GP) regulations, as well as additional site-specific requirements. The VPA IP is typically utilized when it is determined that additional requirements are necessary in order to protect water quality or when it is determined that the facility is unable to comply with the requirements of the GP.

VPA General Permit for AFOs - (9VAC25-192, §62.1-44.17.1)

> An *animal feeding operation (AFO)* is defined as a lot or facility where animals are stabled or confined for a total of 45 days or more in any 12-month period, and where crops or vegetative growth is not maintained in the normal growing season over the lot or facility.

AFOs that confine more than 300 animal units of livestock and handle liquid manure are required to obtain coverage under a VPA general permit. This general permit regulation was first promulgated in 1994 and is now in the second ten year permit cycle, which expires on November 15, 2014. DEQ will initiate a rulemaking to extend coverage for another ten year term prior to that expiration date. Permit requirements include proper handling and storage of animal waste; monitoring of waste, soils, and groundwater; development and compliance with a site-specific DCR approved Nutrient Management Plan; land application recordkeeping and completion of DEQ approved training for the permittees.

VPA Regulation and General Permit for Poultry Waste Management - (9VAC25-630, §62.1-44.17.1.1)

Poultry operations that confine more than 200 animal units of poultry (20,000 chickens or 11,000 turkeys) must register for coverage under the VPA General Permit for Poultry Waste Management. The VPA General Permit and Regulation first became effective on December 1, 2000 with a ten year permit term. The regulation and general permit has been approved for reissuance for another ten year term with an effective date of December 1, 2010.

Permit requirements include proper storage of poultry waste; monitoring of waste, soils, and groundwater; development and compliance with a site-specific DCR approved Nutrient Management Plan; recordkeeping of poultry waste transactions and land applications and the fulfillment of DEQ approved trainings for the permittees. Poultry Waste Brokers have additional requirements for recordkeeping and reporting of poultry waste transactions. DEQ recently completed a regulatory action, effective January 1, 2010, to amend the general permit regulation to include utilization and storage requirements for transferred poultry waste (litter). These amendments ensure that poultry waste is being used in a manner in which state waters are being protected from improper use or storage of poultry waste, not only on permitted farms, but on farms that receive transferred material. These amendments require that persons receiving transferred poultry waste abide by certain minimum requirements, found in 9VAC25-630 -60 through 9VAC25-630-80 regarding land application rates, land application timing, storage and

recordkeeping of land application activities and poultry waste transactions. In addition, the amendments include the option to require a poultry waste end-user or poultry waste broker to obtain a permit if they are found to be non-compliant with the requirements of the regulation.

VPDES CAFO Regulation - (9VAC25-31)

Concentrated Animal Feeding Operations (CAFOs), as defined by the EPA CAFO Rule, are regulated in Virginia under the VPDES Permit Program. A CAFO which discharges or proposes to discharge has a duty to apply for coverage under a VPDES general or individual permit. In response to the changes to the EPA CAFO Rule which became effective in December 2008, Virginia amended the VPDES Regulation effective March 3, 2010. In a letter dated June 14, 2010, EPA approved these VPDES CAFO Regulatory provisions. Permit requirements mirror those found in the EPA 2008 CAFO Rule, and also include additional Virginia regulatory requirements pertinent to the type of operation. For instance, VPDES CAFO permits covering poultry operations would also contain the requirements related to poultry waste transfers in accordance with the amendments to VPA Regulation and General Permit for Poultry Waste Management.

The following sections address the questions, issues and types of information organized in the eight elements as described in A Guide for EPA's Evaluation of Phase I Watershed Implementation Plans dated April 2, 2010:

5.7.1: Final Nutrient and Sediment Target Loads

Final nutrient and sediment target loads will be estimated using the Chesapeake Bay Program Watershed Model. Virginia is waiting to receive this information based on results of Element 2.

5.7.2 Current Loading Baseline and Program Capacity

The Chesapeake Bay Program Watershed Model (WSM) will be used to estimate current nutrient and sediment loads associated with the production area of animal feeding operations (refer to EPA's guidance outlined in "A Guide for EPA's Evaluation of Phase I Watershed Implementation Plans" dated April 2, 2010). In order to comply with this element, on November 29, 2010 Virginia submitted a revised input deck for the WSM. The input deck includes the number of animals by type and county associated with 100 percent of the AFO and CAFO operations.

All AFOs and CAFOs are currently covered by VPA permits, with CAFOs that discharge or propose to discharge being converted to VPDES permit coverage over the next 18 months. Currently, Virginia has 898 AFOs/ CAFOs covered by a VPA permit in the Chesapeake Bay Watershed. Of the 898 facilities, 116 operations are EPA defined Large CAFOs. The table below indicates the number and type of permits along with estimates for future permit coverage in the Bay watershed.

CURRENT PERMIT COVERAGE	ESTIMATED NO. OF VPA SIZE FACILITIES	ESTIMATED NO. OF VPDES SIZE (LARGE) FACITILIES	TOTAL FACILITIES IN BAY WATERSHED
VPA GP AFO	55	15	70
VPA GP POULTRY	727	101	828

All permitted AFOs covered under either the DEQ VPA or VPDES Permit Programs must obtain and implement a site specific nutrient management plan which is then enforceable through the DEQ permit. The NMP must be developed by a Nutrient Management Planner certified by the Department of Conservation and Recreation (DCR) in accordance with §10.1-104.2 of the Code of Virginia and approved by the DCR. More information regarding the DCR Nutrient Management Plan Requirements and Regulations can be found at the following link: http://www.dcr.virginia.gov/soil_and_water/nutmgt.shtml.

The DEQ Animal Waste Permit and Inspections Program is implemented both centrally and regionally. The Animal Feeding Operations Program Coordinator is headquartered in the Central Office; this position is charged with statewide oversight of the program to ensure consistent implementation of the permit, inspection, compliance and enforcement procedures. Staff in the DEQ Regional Offices handle the day to day permitting, inspections, compliance and enforcement aspects of the program. Currently, inspections are completed by seven regional staff positions. Section 62.1-44.15.(5a) of the Code of Virginia requires that annual inspections be completed by a Virginia Certified Nutrient Management Planner; each of the DEQ inspectors, many of the permit staff, and the AFO Program Coordinator hold this certification. This certification facilitates a greater understanding of nutrient management practices and regulatory requirements related to AFOs, and along with on the job training, supports a stronger Animal Waste Program.

Annual inspections are completed for all operations covered under the DEQ animal waste permit program. The scope of these inspections includes animal confinement areas, animal waste and nutrient storage, as well as land application activities and records. In addition, more narrowed scope inspections of these operations may occur for reasons such as a follow-up to an earlier inspection, or in response to a complaint. The table below indicates the number and type of inspections which have occurred over the last three federal fiscal years (FFY) on permitted AFO and CAFO operations.

INSPECTIONS PERFORMED	FFY08	FFY09	FFY10
ANNUAL (TECHNICAL)	962	994	998
COMPLIANCE/ COMPLAINT	150	66	61

Operations which are found in noncompliance with the requirements as outlined by the permit regulations are required to achieve compliance within a reasonable period of time. DEQ staff utilizes the established guidelines and procedures for determining compliance as well as determining the appropriate compliance and enforcement actions (Water Compliance Strategy, Water Compliance Auditing Manual, Enforcement Manual and Division of Enforcement Guidance). Civil penalties may be levied for violations of permit requirements, nutrient management plan requirements and water quality standards. The table below indicates the

number and type of compliance and enforcement actions, including those with civil penalties, which were taken over the last three FFYs.

COMPLIANCE AND ENFORCEMENT ACTIONS	FFY08	FFY09	FFY10
WARNING LETTERS	89	38	42
NOTICE OF VIOLATIONS (NOVs)	30	3	3
NOVs REFERRED TO ENFORCEMENT	27	1	1
CIVIL PENALTIES	$1000.00	$1250.00	$6500.00

5.7.3 Accounting for Growth

Concentrated Animal Feeding Operations (CAFOs) are another growing sub-sector of agriculture. Statewide, the number of farms has been decreasing steeply and the number of animals has been declining only slightly. The result is an increase in the number of animals per farm. This growth is likely to result in the conversion of non-CAFO animal agriculture to CAFOs and a shift from load allocation to waste load allocation. However, because the total number of animals statewide is declining slightly, the growth is not expected to produce a net increase in load.

While ideally growth in this sector would be tracked separately in each of the 39 segment-sheds, this is not possible to manage with the current DEQ data collection. Therefore growth in this sector will be tracked at the state scale.

5.7.4 Gap Analysis

Virginia has identified the following gaps in the regulatory program for this sector:

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1. Currently there are no CAFOs covered under the VPDES permit as DEQ is in the process of development of guidelines for switching coverage from the state VPA permit to a VPDES permit for those AFOs that fall under the CAFO definition.

2. Due to limited resources and inspection mandates for all permitted AFOs, DEQ is able to conduct only a limited number of additional inspections on operations which may benefit from additional scrutiny.

3. DEQ recognizes there are AFOs which may require technical assistance but fall below the existing regulatory threshold for permitting.

4. DEQ and VDACS recognize that all AFOs and CAFOs may benefit from additional education and outreach efforts related to good farm management for water quality protection and preservation.

5.7.5 Commitment and Strategy to Fill Gaps

1. In response to the changes to the EPA CAFO Rule which became effective in December 2008, Virginia amended the VPDES Regulation effective March 3, 2010. In a letter dated June 14, 2010, EPA approved the VPDES CAFO Regulatory provisions of the Permit Program. Virginia has utilized a public participatory approach and established a Regulatory Advisory Panel (RAP) which includes EPA Region III representation as well as Virginia environmental and agricultural stakeholders. Currently, the RAP is assisting DEQ staff in the development of a permit template. Implementation guidance is being developed concurrently with the permit template. DEQ staff will present the permit template for discussion at the next meeting of the RAP planned for early 2011. DEQ anticipates the completion of a permit template along with implementation guidance by mid 2011. Upon completion of the permit template, all CAFOs which have submitted a

complete permit application and require coverage under the VPDES permit will be migrated from their VPA permit. DEQ anticipates this process to be completed in early 2012. Annual inspections will continue to be performed by DEQ regional staff, as the facilities which require VPDES permit coverage will be held to the same level of compliance with the Virginia's regulatory requirements. In addition, DEQ staff will provide technical assistance to permittees on whether they require a VPDES versus VPA permit. The AFO Program Coordinator has and will continue to provide educational and technical assistance to the agricultural community regarding the animal waste program through the delivery of presentations at various outreach opportunities, prepared handouts and the following DEQ web pages: http://www.deq.virginia.gov/vpa/cafo.html, http://www.deq.virginia.gov/vpa/agriculture.html.

2. Currently, the DEQ is mandated by §62.1-44.15. (5a) of the Code of Virginia to complete annual inspections of all AFOs covered by a VPA permit. The DEQ is considering changes to the inspection program in order to provide DEQ with the flexibility to use limited resources more efficiently through a risk based inspection strategy, which would more effectively and efficiently ensure program compliance and protect water quality. DEQ has established and implemented criteria for risk-based inspections which include criteria for poultry and livestock operations covered under the animal feeding operations permit program, including any CAFOs. The criteria for increased and decreased inspections are outlined in the risk-based strategy. With input from EPA Region III, DEQ is planning to amend its criteria for risk-based inspections of CAFOs covered under a VPDES permit.

3. It may appear that there are deficiencies with regards to DEQ regulatory authority for smaller AFOs that fall below permitting thresholds; however, the State Water Control Law provides DEQ the authority to permit smaller AFOs under the VPA regulation. In addition, DEQ has the authority to designate small CAFOs in accordance with the 2008 EPA CAFO Rule.

   DEQ and the Virginia Department of Agriculture and Consumer Services (VDACS) currently have a working relationship to handle complaints and corresponding investigations related to unpermitted agricultural operations, including AFOs. This relationship has facilitated successful resolution of water quality issues found at these unpermitted facilities. In order to increase the effectiveness of this approach to address environmental concerns at unpermitted AFOs, DEQ and VDACS are partnering to enhance the relationship between the existing VDACS Agricultural Stewardship Act (ASA) Program and the DEQ Animal Waste Permit Program.

   DEQ and VDACS will specifically define how the agencies will respond to complaints or concerns associated with small unpermitted AFOs, and will detail the criteria by which decisions will be made regarding the investigation, appropriate corrective measures and ultimate resolution of the water quality issues or concerns.

This approach will supplement the existing complaint driven VDACS Agricultural Stewardship Act (ASA) program by incorporating a proactive evaluation of environmental problems on small farms, with remedies that will include as appropriate:

a. Voluntary implementation of BMPs with follow-up for reasonable assurance;
b. Resolution through the VDACS - ASA;
c. VPA permitting through DEQ; or
d. Designation and VPDES CAFO permitting through DEQ.

There are approximately 800 AFOs in Virginia which fall below the permitting threshold for the VPA program. Approximately 75% are dairy farms and the remainder confined poultry farms. As noted above, DEQ currently conducts an average of just over 1000 inspections annually with current compliance staff resources. If additional staff became available, it would require one person approximately six years or two persons approximately three years to complete the evaluations. Alternatively, assuming that a shift to risk-based inspections could reduce permit compliance inspections by 30%, existing permit staff could complete a systematic evaluation of unpermitted AFOs in less than three years.

Following each individual evaluation, the most appropriate remedy to solve environmental issues would be employed. For farms that discharge or propose to discharge pollutants, and the operator could not implement corrective action within 180 days to control the problem, permitting under a DEQ program would be the most likely course of action.

Further details regarding this strategy will be finalized by mid 2011 and will result in the development of a Memorandum of Agreement (MOA) between DEQ and VDACS. The agencies expect to finalize this MOA in early 2012. Concurrently, the agencies will evaluate the existing program protocols and procedures and where appropriate make changes in order to facilitate a more efficient and effective implementation of the MOU or MOA. Evaluations of the universe of unpermitted AFOs will be completed by early 2015.

4. DEQ and VDACS will seek assistance, from agricultural organizations such as the Virginia Farm Bureau, Virginia Agribusiness Council, other agricultural commodity groups, local governments, Soil and Water Conservation Districts, and others interested in water quality issues, regarding an increase in education and outreach efforts. The goal would be to enhance the environmental awareness among their respective memberships and stakeholders regarding the Chesapeake Bay TMDL, water quality protection and preservation, utilization of the ASA, and the importance of implementing conservation practices. This will be in addition to educational opportunities which both agencies already capitalize on during inspections of permitted and non-permitted farms and in both formal and informal settings.

5.7.6 *Tracking and Reporting Protocols*

The tracking and reporting by the permitted CAFOs will be consistent with the requirements of part 122.42 of 40 CFR. In addition, DEQ would require reporting related to the implementation and performance of any Best Management Practices that are required by the CAFO permit.

Currently, DEQ regulations require recordkeeping by permitted poultry growers and poultry waste brokers and end-users of poultry waste transactions and land application activities. In addition, the poultry waste broker must report annually his records regarding those transfers. The requirements relating to recordkeeping of transferred poultry waste by poultry growers will be added to the VPDES CAFO permits. Additionally, strategies to report the poultry waste transactions to the National Environmental Information Network (NEIN) are being considered. (See 9VAC25-630 for additional information)

5.7.7 *Contingencies for Slow or Incomplete Implementation*

DEQ does not anticipate a delay in implementation of requirements to meet the nutrient and sediment reductions. DEQ's Compliance and Enforcement Program is the mechanism that will be employed to ensure timely implementation to achieve waste load allocations for the production area of the CAFOs.

5.7.8 *Targets and Schedule for CAFO Permit Coverage*

DEQ anticipates that the all operations which are defined as EPA Large CAFOs and *propose to discharge or discharge* or EPA defined Medium CAFOs will be covered under a VPDES permit before 2017. Furthermore, any operations which are designated as Small CAFOs will also be required to obtain coverage under a VPDES permit within a timely manner.

Outstanding Issues That Need To Be Addressed

1. Correct differences between animal types in the Virginia data compared to the model animal types. DEQ uses the following terms when referencing animal types for permitting purposes: Chickens, Turkeys, Dairy Cattle, Slaughter and Feeder, Cattle, and Swine. DEQ will resolve the differences in the animal types for WIP Phase II.
2. Correct differences between actual animal numbers reported and those listed in the model. These differences will be resolved for WIP Phase II.